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## NOTICE OF ALLOWANCE AND FEE(S) DUE

7590 01/26/2010

KRAMER & AMADO, P.C.  
Suite 240  
1725 Duke Street  
Alexandria, VA 22314

EXAMINER

ELPENORD, CANDA

ART UNIT

PAPER NUMBER

2473

DATE MAILED: 01/26/2010

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/731,091	12/10/2003	John Fisher	ALC 3105	8283

TITLE OF INVENTION: PROVIDING VPLS-LIKE SERVICE OVER NATIVE ATM NETWORKS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	04/26/2010

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

### HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER:** Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

## PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail Stop ISSUE FEE**  
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**INSTRUCTIONS:** This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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7590 01/26/2010

**KRAMER & AMADO, P.C.**  
 Suite 240  
 1725 Duke Street  
 Alexandria, VA 22314

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### Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/731,091	12/10/2003	John Fisher	ALC 3105	8283

TITLE OF INVENTION: PROVIDING VPLS-LIKE SERVICE OVER NATIVE ATM NETWORKS

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nonprovisional	NO	\$1510	\$300	\$0	\$1810	04/26/2010

EXAMINER	ART UNIT	CLASS-SUBCLASS
ELPENORD, CANDAL	2473	370-395100

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).	2. For printing on the patent front page, list
<input type="checkbox"/> Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.	(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
<input type="checkbox"/> "Fee Address" indication (or "Fee Address" indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.	(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

**3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)**

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE \_\_\_\_\_

(B) RESIDENCE: (CITY AND STATE OR COUNTRY) \_\_\_\_\_

Please check the appropriate assignee category or categories (will not be printed on the patent):  Individual  Corporation or other private group entity  Government

4a. The following fee(s) are submitted:	4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)
<input type="checkbox"/> Issue Fee	<input type="checkbox"/> A check is enclosed.
<input type="checkbox"/> Publication Fee (No small entity discount permitted)	<input type="checkbox"/> Payment by credit card. Form PTO-2038 is attached.
<input type="checkbox"/> Advance Order - # of Copies _____	<input type="checkbox"/> The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)	<input type="checkbox"/> a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.	<input type="checkbox"/> b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).
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NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature \_\_\_\_\_ Date \_\_\_\_\_

Typed or printed name \_\_\_\_\_ Registration No. \_\_\_\_\_

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS; SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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7590	01/26/2010		EXAMINER	
KRAMER & AMADO, P.C. Suite 240 1725 Duke Street Alexandria, VA 22314			ELPENORD, CANDA	
			ART UNIT	PAPER NUMBER
			2473	
			DATE MAILED: 01/26/2010	

## Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 761 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 761 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

<b>Notice of Allowability</b>	Application No.	Applicant(s)
	10/731,091	FISHER ET AL.
	Examiner CANDAL ELPENORD	Art Unit 2473

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTO-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1.  This communication is responsive to December 29, 2009.
2.  The allowed claim(s) is/are 1-3, 5-9, 13-14, 17, 19-20, renumbering as 1-13 respectively.
3.  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a)  All
  - b)  Some\*
  - c)  None
 of the:
  1.  Certified copies of the priority documents have been received.
  2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3.  Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 \* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4.  A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5.  CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a)  including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached 1)  hereto or 2)  to Paper No./Mail Date \_\_\_\_\_.
  - (b)  including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
 Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6.  DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1.  Notice of References Cited (PTO-892)
2.  Notice of Draftsperson's Patent Drawing Review (PTO-948)
3.  Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date January 13, 2010
4.  Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5.  Notice of Informal Patent Application
6.  Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_.
7.  Examiner's Amendment/Comment
8.  Examiner's Statement of Reasons for Allowance
9.  Other \_\_\_\_\_.

## DETAILED ACTION

### Reasons For Allowance

1. The following is an examiner's statement of reasons for allowance:
2. **Claims 1-3, 5-9, 13-14, 17, 19-20** (renumbering as 1-13 respectively) are allowed.

The present invention is directed to a method and apparatus for emulating VPLS within an ATM network, in which Provider Edge devices are configured for the VPLS connections. Each provider edge device advertises its configured VPLS IDs to other provider edge devices by propagating an information group up the PNNI hierarchy, the information group containing an association between an ATM address of the provider edge device and the VPLS ID. Information groups are propagated back down the PNNI hierarchy, so that each lowest level node learns all ATM addresses to be associated with each VPLS ID. For each pair of provider edge devices supporting the same VPLS ID, one of the provider edge devices establishes a virtual circuit between the pair. Each independent claim uniquely identifies the distinct claimed features.

**Regarding independent claim 1** (Previously Presented) a method of emulating Virtual Provide Local Area Network Service (VPLS) in an Asynchronous Transfer Mode (ATM) network, comprising: configuring, at a plurality of provider edge devices (PEs) arranged in a Private Network-Network Interface (PNNI) hierarchy, a VPLS having a VPLS Group Identifier (ID); at each PE, generating a PNNI Topology State Element (PTSE) including a VPLS Information Group (IG), the VPLS IG indicating the VPLS ID and an ATM address associated with the VPLS; flooding each VPLS IG throughout the

PNNI hierarchy to exchange information between the PEs; establishing a mesh of virtual circuits in the ATM network to emulate VPLS by attaching virtual circuits to pairs of PEs, each of the pairs of PEs in the mesh comprising a first PE and a second PE, wherein establishing each virtual circuit between the first PE and the second PE comprises: selecting the first PE and the second PE for the virtual circuit when the first PE determines that the second PE supports the VPLS ID; determining whether the first PE or the second PE should initiate the virtual circuit; automatically establishing the virtual circuit between the first PE and the second PE using the respective ATM address of each PE as endpoints of the virtual circuit, wherein the virtual circuit has a traffic characteristic equal to a minimum traffic characteristic of the first PE and the second PE.

**Regarding independent claim 6 (Currently Amended)** A method of emulating Virtual Provide Local Area Network Service (VPLS) in an Asynchronous Transfer Mode (ATM) network, comprising: configuring, at a plurality of provider edge devices (PEs), arranged in a Private Network-Network Interface (PNNI) hierarchy, a VPLS having a VPLS Identifier (ID); associating an ATM address with the VPLS ID; at each PE, generating a Private Network-Network Interface (PNNI) Augmented Routing (PAR) Service IG including the VPLS ID, an ATM address associated with the VPLS, and a traffic characteristic associated with both the VPLS ID and the ATM address; advertising the association between the VPLS ID and the ATM address to other nodes within the ATM network; flooding each PAR Service IG throughout the ATM network; establishing

a mesh of virtual circuits in the ATM network to emulate VPLS by attaching virtual circuits to pairs of PEs, each of the pairs of PEs in the mesh comprising a first PE and a second PE, wherein establishing each virtual circuit between the first PE and the second PE comprises: selecting the first PE and the second PE for the virtual circuit when the first PE determines that the second PE supports the VPLS ID; determining whether the first PE or the second PE should initiate the virtual circuit; determining other ATM addresses within the ATM network which are associated with the VPLS; for each such other ATM address, determining whether the is to set up a virtual circuit with the ATM address; automatically establishing the virtual circuit between the first PE and the second PE using the respective ATM address of the first PE and the second PE as endpoints of the virtual circuit, wherein the virtual circuit comprises a traffic characteristic equal to the minimum traffic characteristic of the first PE and the second PE.

**Regarding independent claim 13 (Currently Amended)** A method of emulating a Virtual Private Local Area Network Service (VPLS) at a Provider Edge device (PE) within an Asynchronous Transfer Mode (ATM) network, comprising: configuring, at the PE, a VPLS Identifier (ID) associated with the VPLS, including associating an ATM address with the VPLS ID; advertising the association between the VPLS ID and the ATM address to other nodes within the ATM network, including advertising at least one traffic characteristic to be associated with the VPLS ID and the ATM address; determining other ATM addresses within the ATM network which are associated with the VPLS; generating a PNNI Topology State Element (PTSE) including a VPLS

information group (IG), the VPLS IG indicating the VPLS ID and the ATM address associated with the VPLS; flooding the PTSE throughout the peer group of the node; generating a Private Network-Network Interface (PNNI) Augmented Routing (PAR) Service information group (IG) including the VPLS ID and the ATM address; flooding the PAR Service IG throughout the ATM network; and is establishing a mesh of virtual circuits in the ATM network to emulate VPLS by attaching virtual circuits to pairs of PEs, each of the pairs of PEs in the mesh comprising a first PE and a second PE, wherein establishing each virtual circuit between the first PE and the second PE comprises: for each such other ATM address, determining whether the first PE or the second PE is to set up the virtual circuit with the ATM address; selecting the first PE and the second PE for the virtual circuit when the first PE determines that the second PE supports the VPLS ID; determining whether the first PE or the second PE should initiate the virtual circuit; and automatically establishing the virtual circuit between the first PE and the second PE using the respective ATM address of the first PE and the second PE as endpoints of the virtual circuit, wherein the virtual circuit comprises a traffic characteristic equal to a minimum of the at least one traffic characteristic and a second traffic characteristic associated with the other ATM address.

**Regarding independent claim 17 (Previously Presented)** A node within an Asynchronous Transfer Mode (ATM) network, wherein the node is part of a Private Network-Network Interface (PNNI) hierarchy, comprising: means for receiving a Virtual Private Local Area Network Service (VPLS) identifier (ID); and a VPLS controller

comprising a computer-readable medium encoded with instructions, the computer-readable medium comprising: instructions for receiving a service identifier (ID) identifying a service; instructions for generating a PNNI Topology State Element (PTSE) including a service information group (IG), the service IG indicating the service ID and an ATM address to be associated with the service; instructions for flooding the service IG throughout the PNNI hierarchy by generating at least one message, each message containing at least two PTSEs; instructions for determining other ATM addresses within the ATM network which are associated with the VPLS ID; instructions for, for each such other ATM address, determining whether the node is to set up a virtual circuit with the other ATM address, the instructions for guaranteeing that only one virtual circuit is set up between the node and the other ATM address; instructions for establishing a mesh of virtual circuits to emulate VPLS by attaching virtual circuits to pairs of PEs, each of the pairs of PEs in the mesh comprising a first PE and a second PE, wherein the instructions for establishing each virtual circuit between the first PE and the second PE further comprise: instructions for selecting the first PE and the second PE for the virtual circuit when the first PE determines that the second PE supports the VPLS ID; instructions for determining whether the first PE or the second PE should initiate the virtual circuit; and instructions for automatically establishing the virtual circuit between the first PE and the second PE using the respective ATM address of the first PE and the second PE as endpoints of the virtual circuit.

The Applicant's arguments filed on December 29, 2009 are persuasive. In view of the arguments the claims are allowable over the prior arts.

The prior arts either singularly or in combination fail to anticipate or render the uniquely distinct claimed features obvious.

Dependent claims 2-3, 5, 7-9, 14, 19-20 are allowed by virtue of their dependency on claims 1, 6, 13 and 17 respectively.

3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Frelechoux et al (US 2002/0023163 A1), Holmgren et al (US 7,113,512 B1), Kinsky et al (US 7,558,274 B1), Chang et al (US 2003/0123448 A1), Ginipalli et al (US 7,292,577 B1), Nair et al (US 6,337,863 B1), Luciani et al (US 7,327,738 B2), Kermarec et al (US 2003/0110268 A1), Sugiyama et al (US 6,967,954 B2) And Allen et al (US 7,136,386 B2).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CANDAL ELPENORD whose telephone number is (571) 270-3123. The examiner can normally be reached on Monday through Friday 8:00AM to 5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Bin Yao can be reached on (571) 272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Candal Elpenord/  
Examiner, Art Unit 2473

/Steven HD Nguyen/  
Primary Examiner, Art Unit 2473